

Stochastic sequential machines. Markov chains. Events, languages and acceptors. Applications and generalizations.

**E. POLAK**, *Computational methods in optimization, A unified approach* (Academic Press, New York, 1971) 329 pp, \$17.50.

Preliminary results. Unconstrained minimization. Equality constraints: root and boundary-value problems. Equality and inequality constraints. Convex optimal control problems. Rate of convergence. Further models for computational methods. Properties of continuous functions. A guide to implementable algorithms.

**I. REINER**, *Introduction to matrix theory and linear algebra* (Holt, Rinehart and Winston, Toronto, 1971) 154 pp, \$3.25.

Introduction. Other notations for matrices. Operations with matrices. (Sum, scalar multiple, product, transpose). Rules for manipulation. Review of determinants. Inverse of matrices. Linear equations. Cramer's rule. Linear transformations. Vector spaces. Kernel and range of linear transformation. Characteristic roots and characteristic vectors. Orthogonal vectors. Orthogonal matrices. Symmetric matrices and principal axes. Jacobians. Solutions of selected exercises.

**J.B. ROSEN, O.L. MANGASARIAN, K. RITTER**, eds., *Nonlinear programming*, Proc. Symp. conducted by the Mathematics Research Center, Univ. of Wisconsin, Madison, May 4–6, 1970 (Academic Press, New York, 1970) 490 pp, \$10.50.

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**H.J. RYSER**, *Combinatorial mathematics*, Carus Mathematical Monographs 14 (Math. Assoc. Am., 1965, distributed by Wiley, New York) 154 pp.

Fundamentals of combinatorial mathematics. The principle of inclusion and exclusion. Recurrence relations. A theorem of Ramsey. Systems of distinct representatives. Matrices of zeros and ones. Ortho-